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AGENDA ITEM 3c

TO: MEMBERS OF THE INVESTMENT COMMITTEE

- I. SUBJECT:** Update on Currency Hedging Program Review
- II. PROGRAM:** Total Fund
- III. RECOMMENDATION:** Information
- IV. ANALYSIS:**

BACKGROUND

The purpose of this item is to update the IC on the ongoing review of the currency policy initiated by the CIO following the Asset Allocation Workshop in November 2007. The CIO tasked the Asset Allocation Unit and currency management team in Global Fixed Income to conduct this review and make any recommendations by June 2008. As a first step a discussion on currency hedging was conducted at the January 2008 Board offsite meeting with presentations from Wilshire Associates and State Street Associates. The general conclusions from these presentations were that:

- 1. Unhedged foreign currency exposures provide diversification benefits up to a point;
- 2. Partial currency hedging slightly reduces the volatility of total fund returns;
- 3. Within asset classes, the impact of currency hedging on reducing volatility is much greater in international fixed income than in international equities; and
- 4. Active currency management has potential to add value.

CalPERS established a currency hedging program in 1992 when it was decided to hedge 25% of the foreign currency exposure in the international equity asset class. The policy allocation to international equity in 1992 was 12%.

In the 1992 to 2008 period CalPERS total actual exposure to foreign currency has increased from 16% of total fund to 26% of total fund and now includes all asset classes. Additionally, with the adoption and implementation of the global benchmark for equities and new international targets in other asset classes, the total foreign currency exposure will increase to 44% when fully implemented. Historical currency exposures are shown in Attachment 1. The existing currency policy limits the currency hedge/overlay program to the currency exposure in international equities and has maintained a 25% policy hedge ratio since 1992.

Table 1. Foreign Currency Exposure

Asset Class	1992	Dec. 2007	New Policy
	% of Fund	% of Fund	% of Fund
International Equity	12.0%	20.0%	32.5%
International Fixed Income	4.0%	3.0%	2.0%
International AIM	0%	1.5%	3.8%
International Real Estate	0%	1.2%	3.8%
Other International	0%	0%	1.4%
Total International	16.0%	26.0%	≈44.0%

The return of the CalPERS hedged currency portfolio relative to unhedged index since 1992 is shown in Attachment 2. This indicates that there were gains from the hedge during the 1996 to 2002 period when the dollar appreciated and losses since 2002 to date when the dollar depreciated. The net effect is a cumulative loss of about 2%. The value of the dollar over longer period is shown in Attachment 3 and indicates a cyclical pattern. In order to maintain the constant hedge of 25%, cash flows are needed to settle gains and losses on a monthly basis as the positions are marked to market. CalPERS will have to fund the settlements when the dollar depreciates and will receive cash settlements when the dollar appreciates. The pattern of these cash flows is shown in Attachment 4. The higher the hedge ratio the higher is the cash flow risk in periods of dollar depreciation.

The CalPERS currency program has gradually evolved from a purely passive program to incorporate some active management. Active currency management is implemented through three strategies: active external manager assignments, an active “pilot” internally managed account, and the discretion to adjust the portfolio hedge ratio within +/- five percentage points of the policy target of 25%. Staff discretion to adjust the hedge ratio within the +/- 5% range has been implemented on a limited basis since that authority was granted.

ANALYSIS – KEY CURRENCY POLICY DECISIONS

Staff believes that several key issues need to be decided before the currency policy is revisited.

Two key decisions involving currency policy are highlighted below (A-B).

A. International Equity vs. Total Fund

The present CalPERS currency hedge ratio is expressed as a percentage of CalPERS investment in developed market international equities. One decision is whether the currency hedge ratio should be applied as a percentage of the total fund investment denominated in foreign currencies in all asset classes. In this case, all asset classes would have an unhedged benchmark, and the return of the currency hedge would be reported as a separate line item at the total fund, instead of being embedded within the Global Equities return.

Advantages

The change in the hedge ratio to a percentage of total fund non-U.S. dollar investments would:

1. Recognize that the effect of foreign currency exposure on the total fund risk and return depends on the foreign currency exposure at the total fund, not on how the exposures are accounted for by asset class;
2. Be responsive to changes in CalPERS foreign currency across all asset classes. With the currency hedge set at the total fund, an increase in international investments in fixed income, private equity, real estate, or forestland would all be matched with an associated increase in the currency hedge overlay;
3. Be feasible to implement; and
4. Simplify performance reporting and the Global Equities benchmark.

Disadvantages

For non-publicly traded investments, it is difficult to accurately estimate foreign currency exposures as values are not marked to market daily.

B. Policy (Target) Hedge Ratio

In December 2007, the Committee adopted a new asset allocation. Once fully implemented, CalPERS will have 44% exposure to foreign currencies on an unhedged basis. In view of the increased exposure to foreign currencies, it is appropriate to rethink what the hedge ratio should be going forward.

The primary criteria applied to assess alternative currency hedge ratios are as follows:

Criterion 1. Diversification

Foreign currency exposure has some diversification benefits. Hence a 100% hedge to the U.S. dollar would eliminate this diversification benefit.

Criterion 2. Hedging costs

Higher hedge ratio implies higher transaction costs. A lower hedge ratio is preferred in order to reduce currency hedging costs. Additionally, maintaining a constant hedge imposes a cash flow or liquidity risk when the dollar depreciates.

If the hedge ratio is high the cash flow risk could have adverse consequences in managing liquidity. Cash flow impact during periods of dollar depreciation in the 1992-2008 period is shown in Attachment 5. This indicates that a hedge ratio higher than 25% could potentially result in large cash outflows.

Criterion 3. Total Fund Volatility

Staff analysis indicates that a currency hedge ratio in the range of 15% to 30% would minimize the volatility of CalPERS total fund returns using quarterly returns (Attachment 6). The risk minimizing hedge ratio would be higher if monthly returns are used.

These criteria are applied to assess the merits of four distinct strategies and currency hedge ratios, as listed in Table 2 (Also see Attachment 7):

Table 2. Currency Hedge Ratios

	Applied at the total fund	
Strategy	Policy Hedge Ratio	Currency Exposure
HR_0	0%	44%
HR_50	50%	22%
HR_15	15%	37%
HR_100	100%	0%

STRATEGY HR_0 ZERO HEDGE RATIO

A zero hedge ratio implies the elimination of CalPERS passive currency hedging program.

Advantages

A zero hedge ratio:

1. Results in the greatest currency diversification compared to dominant exposure to the US dollar; and
2. Eliminates the transaction costs including cash flow costs of a passive currency hedging program.
3. Consistent with the asset allocation process.

Disadvantages

1. Total fund volatility would be slightly higher.
2. With a zero hedge ratio as a benchmark, symmetric active currency mandates require the flexibility to short currencies.
3. Since 2001, unhedged international asset returns have exceeded hedged returns to a U.S. investor, as the U.S. dollar has depreciated against other major currencies. While exchange rates are unpredictable, the dollar could reverse trend and begin to appreciate, and thus reducing U.S. dollar exposure after seven years of underperformance is unlikely to be rewarded.

STRATEGY HR_50 HEDGE RATIO THAT MAINTAINS
CONSTANT FOREIGN CURRENCY
EXPOSURE

As shown in Table 1 (page 2), the international exposure (unhedged) as of December 2007 was 26% of total fund. The 25% currency hedge ratio applied to developed markets international equities reduced the foreign currency exposure from 26% to 22%. When the new asset allocation policy is fully implemented unhedged currency exposure increases to 44% (Table 1). In order to keep the currency exposure at December 2007 level (22%) under the new policy, the hedge ratio will have to increase to 50%.

Advantages

1. The relatively high 50% hedge ratio generates greater positive returns if the US dollar appreciates.
2. Keeps the fund currency risks the same.
3. Transaction costs, including cash flow costs, are higher compared to using no hedge (Strategy HR_0).

Disadvantages

1. A high hedge ratio reduces currency diversification.
2. If the U.S. dollar continues to depreciate, higher hedge ratio will compound losses on the hedge.

STRATEGY HR_15

STATUS QUO EQUIVALENT HEDGE RATIO

In this case, a currency hedge ratio at the total fund is set to be equivalent to the present policy. The present currency hedge ratio of 25% of developed market international equity is equivalent to 15% at the total fund, once the new asset allocation is fully implemented.

Advantages

The status quo equivalent (15% hedge ratio at total fund) would:

1. Result in essentially no additional transaction costs;
2. Represent a compromise between no hedge and a high hedge ratio; and
3. Be within a band of hedge ratios that minimizes the volatility of total fund returns.

Disadvantages

Represents less currency diversification than no hedge.

STRATEGY HR_100

FULLY HEDGED (100%)

Advantages

There is 100% hedge to the U.S. dollar which is the currency denomination of CalPERS liabilities.

Disadvantages

1. Transaction and cash flow costs would be higher.
2. Diversification is reduced.

V. CONCLUSION:

Staff as well as the Board's pension consultant continue to believe that it is important to proceed with this policy review and present recommended changes to the Policy Subcommittee for discussion and direction while a final decision may be deferred until a permanent CIO is appointed. This will preserve the momentum of the current review process. If circumstances warrant any action in the interim period Staff will bring it back to Committee.

VI. STRATEGIC PLAN:

This item is consistent with Strategic Plan Goal VIII, manage the risk and volatility of assets and liabilities to ensure sufficient funds are available, first, to pay benefits, and second, to minimize and stabilize contributions. This item is also consistent with Goal IX; achieve long-term, sustainable, risk-adjusted returns.

VII. RESULTS/COSTS:

This item is not expected to have any material cost.

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